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EDITORIAL

COVID-19 pandemic: impacts on the education of resident physicians and fellows in Ophthalmology

Pandemia de COVID-19: impactos na educação de médicos residentes e fellows em Oftalmologia

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"He who studies medicine without books sails an uncharted sea, but he who studies medicine without patients does not go to sea at all."
William Osler

Coronavirus disease 2019 (COVID-19) has spread rapidly around the world, causing serious socioeconomic and public-health implications[1]. In Brazil, from 03/01/2020 to 03/12/2021, there have been approximately 11.2 million confirmed cases of the disease and 270600 deaths, with more than 9.9 million patients recovered from the disease and 1.1 million undergoing follow-up[2].

COVID-19 has caused significant disruption to hospital routines, health services, and medical education, with the systematic cancellation of face-to-face classes and their replacement with distance learning. This highlights new questions about medical education[3-5]. Universities were also closed as part of social isolation measures aimed at flattening the curve of COVID-19 spread. Face-to-face classes were then replaced with online education, and online tools were improved to facilitate integration and maintenance of proposed teaching activities and to overcome the limitations imposed by the context[6].

Of all medical specialties, ophthalmology had the highest proportion of resident physicians with confirmed COVID-19 among all residency programs in New York[7]. Concerns about this possible increase in the risk of infection in ophthalmological practice required extra precautionary measures[8,9]. The COVID-19 pandemic abruptly interrupted the traditional programs of advanced training courses in ophthalmology aimed at resident physicians and fellows. The reduction in the number of clinical and surgical consultations and procedures, especially elective procedures, in favor of emergency care related to COVID-19 created significant gaps in medical education in the specialty.

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In the United States, from 03/01/2020 to 04/05/2020, ophthalmology suffered an abrupt 79% reduction in the number of clinical appointments-it was the greatest reduction among all medical specialties[10]. All elective surgeries, including cataract surgeries, were postponed, resulting in a sudden decrease in the surgical procedures performed by resident physicians and fellows. In addition, all academic meetings and conferences have been switched to the virtual format[5]. To reduce the negative impact of the COVID-19 pandemic on the medical education of residents and fellows, educators have had to incorporate new educational strategies in the specialty's curricula[11].

A survey conducted in India in 2020 with the participation of 716 doctors undergoing training in ophthalmology showed that 81% had their surgical training hampered by COVID-19; 55% noticed an increase in stress levels; 77% reported that their families had expressed increased concern for their safety and well-being; and 76% considered curriculum changes that reinforced that virtual strategies, such as online classes and webinars, are useful[12]. The efforts of some ophthalmology training programs in the New York area are an example of the power of collaboration, with the implementation of scheduled shared lectures, teleophthalmology experiences, and emotional support services for residents and fellows[13]. During the pandemic, teleophthalmology played an important role in ophthalmological practice. After the pandemic, teleophthalmology is expected to save many patients from endless hours in waiting rooms with the development of standardized protocols and incorporation of objective tests that make it possible to screen cases that need face-to-face care [13].

The introduction of new learning methods supported by modern digital solutions and emerging technologies will certainly not be able to bridge all the educational gaps. Questions on the real impact of these new methods on the training of residents and fellows and the reduced number of hours spent in clinical and surgical training during the pandemic will only be answered with the construction of a competence matrix to evaluate and validate the impacts of the pandemic on the more than 100 continuing education courses in ophthalmology accredited by the Brazilian Council of Ophthalmology (CBO).

Despite the many educational options available online, the reduction in direct clinical care and surgical training represents a significant educational challenge[12,13]. Online platforms may suffice for the theoretical training of residents and fellows; however, actual clinical and surgical practice requires physical contact with patients and hours spent in surgical training. Lee et al.[14] found 47 studies that reported wet-lab models for all types of ophthalmic surgeries although most of them have no formal validity assessment. Even if such training tools used surgical simulators for cataract or vitreoretinal surgery[15], this powerful tool could not replace real-life surgical scenarios. Online video lectures are sure to continue after the pandemic. Online access to conferences will continue to have a positive impact and provide more international exposure to great clinical content at reduced costs[16]. However, it should be noted that to ensure a valuable learning experience, quality control over content needs to be ensured first[16].

The need to shift to distance learning has generated considerable pressure, both on students, who are concerned about the development of skills, and on educators, who are forced to venture into a still unknown digital territory despite the increasing use of electronic resources in medical practice and in educational scenarios[3]. The most widely used platforms during the pandemic for virtual learning were Microsoft Teams®, Google Meet®, Edmodo®, Moodle®, and Blackboard®[17,18], whereas the most common video conferencing platforms were Zoom®, Skype® for Business, WebEx®, and Adobe Connect®[5,17,18]. Twitter® has also been widely used as a space for interaction between students and professors, especially to address questions and medical problems[19].

In conclusion, the COVID-19 pandemic has dramatically shaken the pillars of traditional education in ophthalmology and forced educators to reorganize learning strategies. This educational challenge has been answered by either reinforcing or implementing virtual learning platforms. During this period, these strategies received a high level of appreciation from both students and professors[9,12,19]. Given that online education would increasingly occupy the role of traditional education during the pandemic, which is expected to continue in the coming months, it is imperative to develop, implement, and evaluate new strategies to help us overcome the considerable educational difficulties related to COVID-19[20].

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